Federation of Earth Science Information Partners
MAKING DATA MATTER

Federation of Earth Science Information Partners
Partnership Application

Please complete all sections to the fullest extent possible and forward completed application to: Carol Meyer, carol.meyer@earthsciencefoundation.org. If you have any questions, please contact her at 877.870.3747.

I. CONTACT INFORMATION

A. Primary Contact/Principal Investigator

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B. Designated Assembly Representative (could be same as above)

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C. Other Contacts

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Name:
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II. ABOUT YOUR ORGANIZATION

A. ORGANIZATION/DIVISION/PROJECT NAME: Sonoma Technology, Inc. (STI)

B. OVERVIEW OF YOUR PRIMARY ACTIVITIES in regards to the Earth Sciences Community (200 words or less)

Founded in 1982, Sonoma Technology, Inc. (STI) provides scientific and operational services for air quality, meteorology, climate, and fire science research and applications. In addition, our services include geographic information systems, custom instrumentation, software and system development, training and education, and public outreach. Our recent work includes major studies across the United States as well as projects in Canada, Mexico, Egypt, China, Qatar, and Antarctica. STI is an employee-owned company based in Petaluma, California.

STI's staff includes scientists with expertise in meteorology, chemistry, atmospheric sciences, policy analysis, and computer science. Our senior scientists serve as members of university faculty, government advisory committees, and journal editorial boards. STI scientists regularly publish in scientific journals; act as peer reviewers for journals, associations, and government agencies; and actively participate in public education programs.

C. Please list and briefly describe the primary product(s) or service(s) that your organization provides (will provide) to the Earth Sciences community.

In collaboration with our partners (US EPA, NASA, USDA Forest Service, others), STI performs applied research and develops decision support tools in the areas of air quality, meteorology, climate, and fire sciences. STI's primary contribution to the Earth Sciences community is in the practical use of Earth Science data to inform decision makers. Some examples include:

- STI runs the AIRNow Data Management Center or hub for EPA's AIRNow (AIRNow.gov), which is a nationwide public outreach program that works cooperatively with over 130 state, local, federal, and tribal air quality agencies (stakeholder agencies) to provide the public and media with real-time air quality information (e.g., maps, forecasts, and media stories). The AIRNow Data Management Center (DMC) rapidly ingests and processes data from over 2,000 monitoring sites and generates hundreds of maps and information products each hour. Equally important, AIRNow encompasses a community of over 1,200 individual stakeholder staff members (stakeholders) from across the United States, Canada, and Mexico who voluntarily provide data, forecasts, and ideas to the AIRNow Program.

- STI and USDA Forest Service AirFire Team develop and maintain SMARTFIRE and the BlueSky Framework: SMARTFIRE combines fire information collected via satellite with ground-reported data; BlueSky takes output from SMARTFIRE and adds meteorological models to predict emissions and smoke impacts from wildfires and prescribed fires. These tools are used by air quality forecasters, prescribed burn managers, and emission inventory developers.

- STI received several contracts from NASA to use satellite products to improve air quality management practices and decision support. Currently, our team is creating a system called the AIRNow Satellite Data Processor (ASDP) that will use NASA satellite data and will run operationally as part of the AIRNow operations. The ASDP will allow for the integration, fusion, and mapping of real time NASA/NOAA satellite data.

- STI and several subcontractors were recently awarded a contract to help EPA plan for development of an air quality cyberinfrastructure (CyAir) by linking and drawing upon existing community experience and data management and analysis systems. To meet these requirements for the CyAir project, the STI team will investigate and assess current tools and portals for access, integration, synthesis, and publication of air quality and related data and then identify appropriate standards and best practices for an air quality data cyberinfrastructure. The STI team will ensure that the resulting

cyberinfrastructure for air quality management is consistent with and will contribute to the US Integrated Earth Observing System (IEOS) and the Global Earth Observations System of Systems (GEOSS).

D. Please give a main website address for the proposed Partnership:

Web Address: www.sonomatech.com

III. HOW YOUR ORGANIZATION WILL BENEFIT FROM/CONTRIBUTE TO THE EARTH SCIENCE INFORMATION PARTNERS (ESIP) FEDERATION

A. Describe current or anticipated users of your products and services and how you think the Federation can help you better serve this population. (200 words or less)

The current and anticipated users of our products and services include federal, state, and local agencies, and the public. The Federation can help us to better serve our users by connecting us to other data providers and by helping us determine the best practices that can be implemented as part of our ongoing projects with state/local governments and federal government agencies such as EPA, USDA Forest Service, and NASA.

In addition, with service oriented architecture projects like CyAir and other systems developed for the Forest Service (www.getbluesky.org) and EPA (www.airnowgateway.org), we can contribute by providing our experience and lessons learned. For example, we recently led an ESIP virtual workshop that described the AIRNow Gateway to ESIP's Air Quality Cluster community.

B. Describe any Earth science technologies that you have developed and are willing to bring to the Federation's efforts to provide best-practices. (200 words or less)

- SMARTFIRE: an algorithm and database for collecting, associating, and reconciling fire information from disparate sources, particularly satellite-derived information.
- BlueSky Framework: an open-source, modular framework that seamlessly connects processes in the fire and smoke emissions and dispersion processing chain.
- BlueSky Gateway: a collection of tools and products that harness SMARTFIRE and the BlueSky Framework to provide decision support to the air quality and prescribed burning community.
- AIRNow Gateway: a data access portal for GEOSS and anyone who wants real-time air quality data.
- AIRNow-Tech: a decision support system that allows geo-browsing real-time air quality and meteorological data.
- AIRNow-International: the new software system that powers the domestic AIRNow program and is being installed in other regions (first in Shanghai, China). It consists of the Data Management System (DMS) that processes and quality controls data and the Information Management System (IMS) that generates maps and files that are distributed with web services

C. Describe how your proposed membership would contribute to the efforts and the mission of one or more standing committees, working groups and/or clusters. See Page 3 for descriptions of the different activities of the various standing committees, working groups, and clusters. (200 words or less)

Air Quality Cluster - SMARTFIRE and the BlueSky Framework will contribute significantly to the air quality cluster. A SMARTFIRE web service is already embedded in the Air Quality Architecture Implementation Pilot (AIP) project. The BlueSky Framework has recently been completely exposed as web services and could also be integrated with the AIP. STI also brings a close collaboration with the USDA Forest Service, a key stakeholder in air quality and other Earth Science issues.

Information Technology and Interoperability – The CyAir project will provide an opportunity to discuss, recommend, and implement interoperability among the Earth Science community. In addition, it will investigate information technology solutions and then pilot these technologies where appropriate. We can provide insights and recommendations to ESIP from the broader community that STI serves with the AIRNow and BlueSky programs.

D. Describe your own use of Earth science information and data and how you would see this use enhanced by your partnership in the Federation. (200 words or less)

STI uses Earth Science information in nearly all its projects. We expect that partnership in the Federation will provide deeper understanding of the available data sets, tools, catalogs, and community. The ESIP Federation can also guide STI as it seeks to deliver products that can be discovered and reused by other systems. The Federation provides the links that allow for more efficient exchange of information and for reaching out to communities that we typically don't interact with as part of our projects.

IV. YOUR CHOICE OF MEMBERSHIP TYPE. PLEASE PICK ONE.

ESIP-I (primarily a data center/archive) ☐

ESIP-II (primarily a research center) ☐

ESIP-III (primarily applications and education) ☒

ESIP-IV (primarily a sponsoring member) ☐

V. Any other comments about your proposed membership and its relation to the Federation that you wish to provide.

We have already been participating in ESIP by attending the summer 2009 and winter 2010 annual meetings.

Thank you for your application for partnership in the ESIP Federation.

List of Federation Committees and Clusters

Administrative Committees

Executive Committee: Comprised of all standing and administrative committee chairs, ESIP Type Representatives, the President and Vice President of the Federation. Oversight body for most day-to-day activities of the Federation, acts on behalf of the Assembly between meetings.

Constitution and Bylaws: Provides counsel on matters related to the constitution and bylaws and other related issues (e.g. amendments to government documents)

Finance and Appropriations: Oversees financial resources of the Federation, including the annual budgeting process.

Partnership: Reviews and processes all applications for membership before making applications available for review by members of the Federation. Deals with other membership-related issues.

Standing Committees:

Commercial Development: Promotes a forum wherein commercial development of Earth science information can be fostered. (inactive)

Community Engagement: Provides a forum for the Federation to promote partner products and to engage new users for data products and services. (inactive)

Education: Provides a forum to make accessible to educators and learners at all levels in both formal and informal educational contexts the Earth science data, information, tools, and curricula available within the ESIP Federation.

Information Technology and Interoperability: Provides a forum for discussing information technology and interoperability issues of the Earth science community and serves as a central point for activities in this realm.

*Products and Servic*es: Provides a forum for defining best practices and defining requirements for earth science products and services. Currently is involved in developing an inventory of partner products and services.

Clusters (presently active, April 2009):

Web Services
Semantic Web
Data Preservation and Stewardship
Decisions
Air Quality
Federated Search
Water